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INSTEP STRUCTURE FOR CONVENTIONAL LACE STAY OF SHOE

Filed Dec. 13, 1961

FIG_1

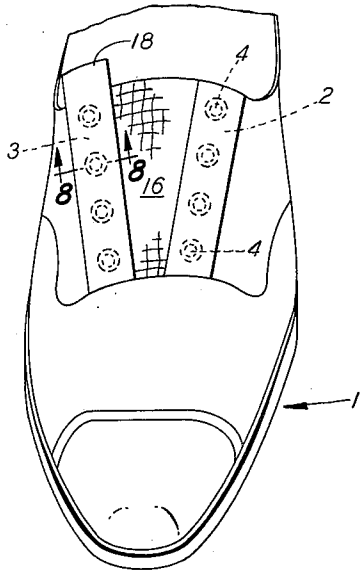


FIG_2

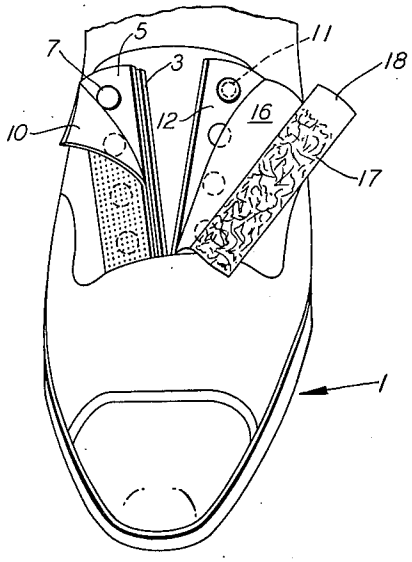


FIG_3

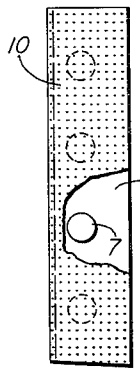


FIG_4

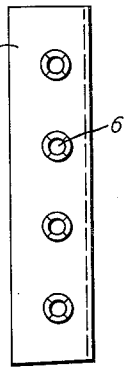


FIG_5

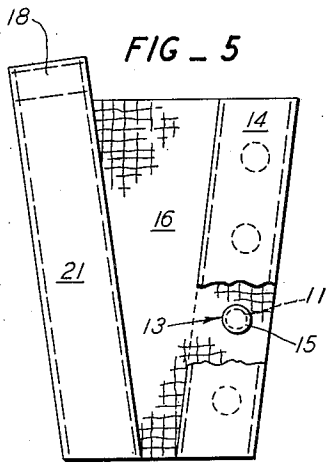


FIG_6

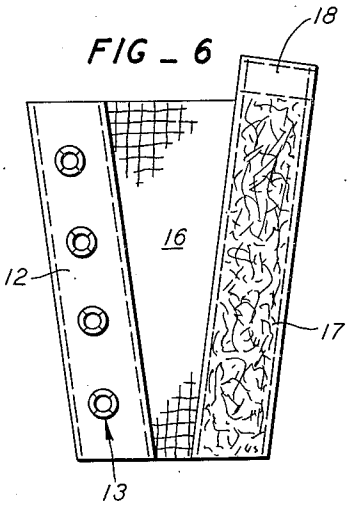


FIG_7

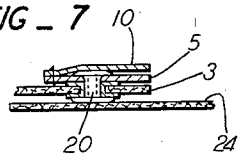
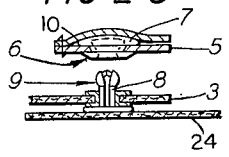


FIG_8



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INSTEP STRUCTURE FOR CONVENTIONAL LACE STAY OF SHOE

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This invention relates to an imroved instep structure for use with the conventional lace stays of shoes, and has for one of its objects the provision of instep structure that is adapted to supplant the shoe laces in shoes having the conventional lace stay construction for such laces.

In shoes, the "instep" structure may include what is technically called the lace stay, but in its broadest sense, the instep structure is the portion of a shoe that extends over the instep. The "lace stay" identifies collectively the two pieces of the shoe that extend partially over the instep of the foot and each of which has a row of spaced eyelet holes for the shoe lace. The lace extends over the instep of the foot and connects the two "lace stay pieces."

The present invention substitutes for the shoe lace in each shoe in that it provides means for connecting the lace stay pieces of each shoe, hence it will be called "instep device."

Another object of the invention is the provision of an instep device that is adapted to connect the lace stay pieces of each shoe, and which device includes an elastic portion that enables the instep device to stretch and to contract when it connects the lace stay pieces and the shoe is on the foot, thereby providing a structure that is more comfortable than the conventional, inextensible shoe lace, and which device may be readily separated into two pieces in a single simple pull on one of the latter two pieces, or as readily connected, when separated, by a simple pressure of the fingers to press portions of such two pieces together.

An added object of the invention is the provision of a simple, economically made instep device that may be quickly attached to any shoe having conventional lace stay pieces, whether the latter are blucher cut or bal cut, and which instep device includes an elastic member that is adapted to connect said lace stay pieces, and to disconnect the latter while still secured to said lace stay pieces.

For many years shoes have been made that incorporate elastic webbing, usually at the sides, to provide greater comfort for the wearer, and to eliminate the use of shoestrings. However, the webbing is subject to deterioration resulting in a looseness in the shoes that defeats the intended purpose of the webbing. Furthermore, even where elastic webbing has been used, as above mentioned, there is still difficulty encountered in putting on the shoes, since the elastic must be forceably stretched to a certain degree in the step of inserting the feet in the shoes. The same degree of stretch must be effected in removing the shoes.

One object of the present invention is the provision of instep structure that enables a person to enjoy the benefits of elastic webbing in the upper quarter or portion of the shoe without the disadvantages above noted, and which structure is applicable to conventional shoes of the type having the lace stay construction, whether of the blutcher cut or straight.

Other objects and advantages will appear in the description and drawings.

In the drawings, FIG. 1 is a front elevational view of a shoe having the improved instep structure thereon.

FIG. 2 is a view similar to that of FIG. 1 in which

the instep device is open and parts thereof are turned back to show normally hidden structure.

FIG. 3 is an enlarged elevational view, partly broken away, of one of the instep parts of the instep device, which part is the left hand part, looking at FIG. 2.

FIG. 4 is an elevational view of the reverse side of the part shown in FIG. 3.

FIG. 5 is an enlarged elevational view of the other part of the instep device that is the right hand part looking at FIG. 2. A portion is broken away to show normally hidden structure.

FIG. 6 is an elevational view of the reverse side of the part shown in FIG. 5.

FIG. 7 is a cross sectional view taken through a fastener element at an eyelet hole, which element is different from the fastener elements shown in the other figures. There is one such element in each eyelet hole.

FIG. 8 is a cross sectional view along line 8—8 of FIG. 1, except that the parts are separated, or exploded, for clarity.

In the following detailed description, only one shoe will be described in connection with the instep device. The fasteners for both shoes are alike, except that there is a right and a left. The shoe shown in FIGS. 1, 2 is the shoe on the left foot of the wearer. The various parts illustrated will be merely reversed from left to right, for the other shoe, or for the shoe on the wearer's right foot. This will be explained in the description, where necessary, so that it will be clear.

The shoe on which the present closure is adapted to be applied is generally designated **1**, and is of the oxford type having a bal or straight cut as distinguished from the blucher cut, and in which the lace stay comprises lace stay pieces **2**, **3** in which their adjacent edges are normally of progressively increased spacing from the lower ends of said edges in an upward direction away from the vamp of the shoe. FIG. 2 shows a normal spacing that occurs when the shoe is on the foot of a wearer so as to enable the upper quarter of the shoe, which includes the lace stay, to be snugly drawn about the foot. Each lace stay is formed with a row of eyelet holes **4** for a shoe lace, and these holes may have the usual metal eyelets that may, or may not be visible from the outside of the shoe, according to structure used.

In order to shorten terms, the words "flap" or "flaps" will be used hereafter instead of the words, "lace stay piece" or "lace stay pieces" to designate such pieces.

In the shoe that is illustrated there are four eyelet holes **4** in each flap. This number may vary with different shoes, but does not alter the principle of the invention since the instep device may be made for any number of eyelet holes.

Strip **5**, shown in FIG. 3, is of sufficient length to extend longitudinally over the row of eyelet holes in the flap **3**, and this strip, which may be made of leather, plastic, or any other suitable flexible material, carries female fastener elements **6**. There is one fastener for each eyelet hole in flap **3**, and they are spaced, longitudinally of flap **3**, the same distances apart as the eyelet holes in said flap.

In FIGS. 1–6 and 8, the fastener elements **6** are conventional, each being spring sided socket elements in a relatively thin head **7** that is riveted to strip **5**, with the opening into the socket in head **7** facing toward the flap **3**.

The yieldable, headed shank **8** on the male element **9** of the fastener is adapted to extend from the underside of flap **3** through each eyelet hole **4** so that the bulbous split head of the shank projects above flap **3** for being sprung into the socket in each element **6** under pressure against the head **7** when the split head of the male element is

aligned with the open side of the socket in element **6**. A flat, thin head on the male element **9** at the end of the shank opposite to the split bulbous head will be between the flap **3** and the tongue of the shoe, as seen in FIG. 8.

Secured to strip **5** in a position overlying the latter is one of two nylon fastener tapes. This fastener tape is designated **10**, and extends from end to end of strip **5** and is secured to said strip **5**, by stitching, or by any other suitable means, along the edge of strip **5** that is remote from the edge of strip **5** that is adjacent to the free edge of flap **3**. The width of the fastener tape **10** is substantial, so as to provide an adequate exposed surface for engagement with the other nylon fastener that is intended to engage the tape **10**.

Nylon fastener tape of the above type is known to the trade and to the public under the trade name VELCRO. The tape **10** has hook elements of nylon fibers on the exposed surface. This is known as the "hook" tape. The hook elements face outwardly of the shoe (FIG. 2). The nylon hooks forming this exposed side are adapted to releasably engage relatively loosely woven or matted nylon that is secured to the other tape of the nylon fastener, which is the "pile" tape, as will later be described more in detail.

A strip **12**, similar to strip **5**, is adapted to extend over the eyelet holes **4** in flap **2**, and this strip carries fastener elements **13** that are identical to the fastener elements **6** carried by strip **5**. The fastener elements **13** are adapted to be secured to the flap **2** in exactly the same manner as the fastener elements **6** are secured to flap **3** and an extension **14** of said strip **12** overlies the strip **12**, to extend over the heads **15** of the fastener elements. Male fastener elements **11**, identical to the male fastener elements **9**, extend through the eyelet holes in flap **2** for removable securement of the bulbous spring heads of elements **9** in the sockets in the fastener elements **13**.

Secured to the extension **14** is a marginal portion of an elastic web **16**. Web **16** is preferably of the woven fabric type having rubber or the like incorporated therein so as to enable stretching the web in a direction at right angles to the length of strip **12**.

The elastic web **16** is of a width, in the same direction as the length of strip **12** that is equal to the length of the latter and to the length of strip **5**, and said web is adapted to extend over the instep of a foot in shoe **1**. Also, web **16** is adapted to fully extend across the space between flaps **2**, **3**.

The marginal portion of the web **16** that is remote from extension **14** has the other nylon tape fastener, or pile tape **17** secured thereto. The loosely woven or matted nylon mesh on this fastener tape **17** is adapted to face, and to be engaged by the nylon hooks on hook tape **10**.

Tape **17** extends slantingly relative to extension **14**, in directions that substantially correspond to the divergence of the adjacent edges of flaps **2**, **3**. Thus the tape **17** will be substantially parallel with tape **10**.

Secured to the upper end of the tape **17** is a finger engageable tab **18** that projects above the upper edge of the web **16**.

A finishing strip **21** may be secured over the web **16** and tape **17** that corresponds in appearance to the extension **14**. Thus, when the instep device is on the shoe connecting flaps **2**, **3**, it will give the very neat appearance shown in FIG. 1. The tab **18** will be over the flap **3** which is the flap adjacent to the inside of the foot and that is adjacent to the shoe that is on the other foot. Thus tab **18** will be at the adjacent sides of a pair of shoes on the wearer's feet.

Preferably, the web **16** completely closes the gap between the shoe flaps, although this is not essential since one or more narrow strips of elastic webbing may extend across the instep.

From the foregoing description it will be apparent that the male fastener elements **9** and **11**, which are identical in structure, may very readily be inserted, from the foot side of the shoe, through the eyelet holes **4**, and since the bulbous heads on said elements are sprung through the eyelet openings, they will not fall out, but will stay in the openings with the bulbous heads projecting from the upper sides of flaps **2**, **3** until they are sprung back out of said openings.

The fastener elements **6** are readily connected with the fastener elements **9**, thus securing the strip **5** and the pile tape **10** to the flap **2** in the position shown in FIG. 2.

The male fastener elements **11** in the eyelet holes in flap **3** are connected with the female fastener elements **13** that are on strip **12** and the webbing is secured to the flap **3**.

In operation, the fastener tapes **10**, **17** will be separated, and the flaps **2**, **3** will be fully open, so the feet may be readily slipped into the shoes.

The wearer then merely swings the tape pieces **17** over the tapes **10** and gently prises them together and the flaps **2**, **3** will be securely, but releasably, connected.

Any degree of tautness of the elastic **16** may be had, since hooks and piles on the tape pieces **10**, **17** will connect wherever they are brought into contact.

To open the instep device it is merely necessary to pull the tabs **18** outward so as to disconnect the tapes **17** from tapes **10**, since pile tape **17** will readily pull away from hook tape **10**.

FIG. 7 shows a conventional two-piece rivet **20** securing the tape **10** and strip **5** to the shoe flap **3**. As seen in FIG. 7, the tongue **24** of the shoe will be between the rivet head and the foot of the wearer.

Rivets **20** are preferably in two pieces each having a head and a shank, the one shank being telescopically and frictionally fitting in the other to tightly connect when the heads are driven toward each other, but which pieces may be pried apart, with force, when it is desired that they be separated. This structure provides a more permanent installation than where the fastener elements of FIGS. 1–6 and 8 are used. The rivet structure is old in itself, so no claim is made thereto.

It should be noted that where a permanent installation is desired, the tapes **10**, **17** may be sewed or connected to the flaps of the shoe.

By the structure illustrated it is seen that the instep device may readily be applied to any conventional oxford type shoe, and may be transferred from one pair of shoes to another.

The position of the elastic web over the instep is important. This is where binding will normally occur, even in shoes where there is elastic webbing at the sides, and by positioning the webbing at this point, there is no objectionable binding or pain, or noticeable slowing of blood circulation, yet the shoes remain snug on the feet.

By the provision of the "hook" and "pile" tapes of the character described, the instep device is adapted to be adjusted to any foot contour with exact precision not possible where snap fasteners, hooks or the like are used, since the hook and pile tapes will connect with each other at any point where they come into engagement with each other.

Also of particular advantage is the fact that the shoes may be slipped easily on to the feet by fully opening the flaps, and the closing of the flaps is a simple matter of pressing the pile tape against the hook tape, and the wearer can place the elastic web under whatever tension is desired. Removal of the shoes merely requires pulling tape **17** away from tape **10**.

The terms "hook tape" and "pile tape" are intended to define tape having the characteristics and structure substantially as described for tapes **10**, **17**, such tapes, in themselves being conventional.

The invention is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings, as various other forms of the device will of course be apparent to those skilled in the

art without departing from the spirit of the invention or the scope of the claims.

I claim:

1. An instep device for releasably connecting a pair of spaced shoe flaps on a shoe, and which flaps are each formed with similarly extending rows of openings for shoe laces, said device comprising:

(*a*) a web of elastic material adapted to extend across the space between said flaps;

(*b*) means secured to said web along one edge thereof adapted to be secured in the openings of one row of said openings in one flap of said pair thereof for securing said web along said one edge thereof to one of said flaps;

(*c*) a flexible member along the edge of said web opposite to said one edge thereof;

(*d*) means respectively on said web and on said flexible member detachably connecting them and;

(*e*) means secured to said flexible member adapted to be secured in the openings of the other flap of said pair for securing said elastic means to said last mentioned flap.

2. In a construction as defined in claim 1,

(*f*) pressure sensitive means on said web and flexible member for connecting them when pressed together, and;

(*g*) the said means on said web being adapted to be peeled from engagement with the means on said flexible member in a direction outwardly of the flap on which said flexible member is adapted to be secured for separating said means on said web and said flexible member from each other.

3. In a construction as defined in claim 2,

(*h*) a finger engageable tab connected with the said means on said web adapted to be manually grasped for so peeling said last mentioned means from the means that is on said flexible member.

4. An instep device for releasably connecting the spaced pair of shoe flaps on a shoe and which flaps are each of the type having similarly extending rows of openings formed therein for shoe laces, said closure comprising:

(*a*) a pair of elongated, flexible members respectively adapted to extend over the said rows of openings longitudinally thereof;

(*b*) spaced fasteners independently of each other secured to each of said flexible members adapted to extend through the openings in each of said rows for securing said flexible members against the outer sides of said flaps;

(*c*) a flexible elastic web connected with one of said flexible members along one edge thereof, and;

(*d*) means for releasably connecting said web along the other edge thereof opposite to said one edge with the other flexible member of said pair when said flexible members are secured to said flaps by said fasteners.

5. In combination with a shoe having an upper provided with a pair of spaced flaps each having a row of openings for shoe laces for connecting said flaps over the instep of the wearer's foot;

(*a*) a web of flexible, elastic material extending across the space between said flaps and over the other surfaces of the latter along two opposite edges of said web;

(*b*) fasteners secured to said web along one of said two edges respectively extending through the openings in the flap that are adjacent to said one of said two edges, securing said fasteners against withdrawal from said openings, and;

(*c*) web engaging means along the other edge of said two thereof that is opposite to said one of said two edges releasably securing said web along said other edge to the other flap of said pair.

6. The combination as defined in claim 5, plus;

(*d*) said web engaging means including a strip of flexible material;

(*e*) fasteners corresponding to those on said web secured to said strip and extending through the openings in the said other flap of said pair.

7. In combination with an oxford type shoe having spaced instep flaps over the instep;

(*a*) a web of elastic material adapted to extend across the space between said flaps and over the instep of the foot of a wearer when said shoe is on said foot;

(*b*) means securing said elastic material along one edge thereof to one of said flaps;

(*c*) a hook tape secured to the other of said flaps having flexible hooks projecting outwardly relative to said flap;

(*d*) a pile tape secured to the edge of said elastic material opposite to said one edge having its hook engageable pile face directed toward said hook tape for releasable engagement of said pile with said hooks to releasably secure said web across said instep.

8. The combination as defined in claim 7;

(*e*) said means securing said web along one edge thereof to said one of said flaps comprising detachably connected elements respectively secured to said web and to said one of said flaps whereby said web may be removed from said one of said flaps upon disconnecting said elements, and;

(*f*) detachably connected elements respectively on said pile tape and on the other of said flaps detachably securing said pile tape to said other of said flaps.

9. The combination as defined in claim 8, plus;

(*g*) strips of flexible material secured to said web and extending over the said detachably connected elements that are respectively secured to said web and to said one of said flaps covering them from view, and;

(*h*) means connected with said pile tape adapted to be manually grasped by the fingers of a hand for pulling said pile tape away from said hook tape.

References Cited in the file of this patent

UNITED STATES PATENTS

587,705	Closson	Aug. 10, 1897
1,809,998	Wernmark	June 16, 1931
1,921,177	Watanabe	Aug. 8, 1933